Newton Aigbokhan

Backend & Platform Engineer | C# / .NET 10 | AI Engineering | Kubernetes | Distributed Systems

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PROFESSIONAL SUMMARY

Backend Software Engineer specialising in building scalable distributed systems, modular monoliths, and API integration platforms using C# and .NET (8/9/10). Experienced in high-throughput event pipelines — including city-wide Automatic Number Plate Recognition (ANPR) systems — as well as production AI integrations and self-hosted voice/LLM workflows.

Strong expertise in ASP.NET Core, Entity Framework Core, relational database design (PostgreSQL, SQL Server), containerised deployments (Docker, Kubernetes), and disciplined AI-assisted engineering backed by automated architecture and integration tests. Seeking a focused, long-term full-time backend engineering role in Germany.

PROFESSIONAL EXPERIENCE

Software Engineer | Chithub Company Limited *Jan 2022 – Present*

Backend & Integration

- Contributed to the development of a backend platform integrating Automatic Number Plate Recognition (ANPR) systems used for vehicle monitoring and traffic data collection across city-wide infrastructure.
- Designed backend services to ingest and process vehicle detection events, images, and metadata received from multiple distributed roadside ANPR devices.
- Implemented scalable ASP.NET Core APIs and background processing services to manage data ingestion, validation, and storage workflows.
- Developed integration pipelines to reliably process high volumes of incoming data from external camera systems and transmit processed records to downstream services.
- Applied Clean Architecture and SOLID design principles to structure backend services, improving maintainability and system modularity.
- Optimised database performance using SQL Server, PostgreSQL and MongoDB through indexing (defined via Entity Framework Core), query tuning, and schema improvements.
- Implemented secure integrations with third-party payment gateways and identity verification providers using OAuth2 and JWT-based authentication.
- Participated in code reviews and technical discussions, contributing to improved development practices and mentoring junior developers.

DevOps & Platform Engineering

- Provisioned and managed Kubernetes clusters on AWS using Kops, deploying containerised backend services on self-managed bare-metal infrastructure.
- Managed DigitalOcean Kubernetes (DOKS) environments for application deployment, monitoring, and scaling.
- Containerised backend services using Docker and implemented deployment workflows for Kubernetes environments.
- Configured infrastructure components including ingress, service networking, persistent storage volumes, and environment configuration for containerised workloads.
- Supported CI/CD pipelines for automated builds and deployments of backend services.

Lead Backend Engineer | Newtonly Limited *2024 – Present*

- Architecting Adaraflow (live beta), a 23-module .NET 10 multi-tenant AI German learning platform (EF Core 10, PostgreSQL, Redis, Hangfire, Microsoft.Extensions.AI) with a toggleable 100% local LiveKit WebRTC voice tutor (Silero VAD, Faster-Whisper, Kokoro/Piper) and 498 test files including 15 NetArchTest architecture suites.
- Engineering a modular multi-tenant hospital management and EHR platform (Newtonly Health) with ASP.NET Core, RBAC, patient-scoped authorisation, and offline-first sync — approaching beta release.
- Developing a cloud-based multi-outlet POS and inventory management platform (Newtonly POS) with event-driven stock reconciliation, Redis caching, and auditable reporting.
- Delivering companion React 19 / TypeScript web applications and a white-label Flutter mobile client backed by OpenAPI/Scalar contracts, Testcontainers integration suites, and structured AI-agent guardrails.

EARLIER EXPERIENCE

Mobile Developer — Lingtechy, Lagos *2019 – 2021*

Developed Android applications in Java; integrated Firebase, OneSignal, strongSwan IKEv2 VPN, Google Play Billing, and AdMob. Managed infrastructure on AWS, GCP, and DigitalOcean.

Web Developer — Cedeny Company, Lagos *2018 – 2020*

Built e-commerce platforms using WordPress and WooCommerce; developed responsive front-end interfaces with HTML, CSS, JavaScript, and Bootstrap.

KEY SYSTEMS & PROJECTS

Adaraflow — Modular .NET 10 & Self-Hosted AI Language Platform | Lead Architect & Engineer

Multi-tenant AI German learning SaaS in live beta (Case Study: portfolio.newtonaig.com.ng/adaraflow/ · Beta: af-learn.newtonly.net, af-app.newtonly.net, af-admin.newtonly.net). Built as a 23-module .NET 10 modular monolith (Vertical Slice, Mediator CQRS, Finbuckle multi-tenancy, EF Core 10/PostgreSQL) with a <50ms deterministic German evaluator, Microsoft.Extensions.AI fallback, 15-state TutorProgressionPolicy, and a single-flag 100% local LiveKit voice stack, serving 3 React 19/TypeScript apps and a Flutter mobile app.

Election Result Management System (ERMS) — INEC | DevOps / Backend Contributor

Contributed to the infrastructure and backend development for Nigeria's official Election Result Management System (ERMS) deployed for INEC. Supported deployment and management of Kubernetes-based infrastructure responsible for receiving and processing national election result data. Also participated in backend feature development and system integrations.

City-Wide ANPR Integration Platform | Backend Engineer

Designed and built the backend for a Smart City Intelligent Transport System (ITS) integrating ANPR cameras deployed across urban road infrastructure. The platform ingested continuous streams of vehicle detection events, images, and metadata from distributed roadside devices. Built on .NET / ASP.NET Core, containerised with Docker, and orchestrated on Kubernetes (AWS / DigitalOcean).

Newtonly Health Platform | Lead Engineer

Multi-tenant hospital management and EHR SaaS built with ASP.NET Core and modular architecture, featuring patient records, appointment scheduling, vitals tracking, and two-layer RBAC security.

Newtonly POS & Inventory System | Lead Engineer

Cloud-based multi-branch POS and inventory platform built with ASP.NET Core, PostgreSQL, and Redis for fast barcode checkout, real-time stock sync, and end-of-day reconciliation.

TECHNICAL SKILLS

Languages: C#, .NET 8 / 9 / 10, ASP.NET Core, Entity Framework Core, TypeScript, JavaScript, Blazor, Java (Android)

Architecture: Modular Monolith, Microservices, Vertical Slice Architecture, Clean Architecture, Domain-Driven Design, CQRS (Mediator), RESTful APIs (OpenAPI/Scalar), Event-Driven Systems

DevOps & Cloud: Docker, Kubernetes, Kops, DigitalOcean DOKS, AWS, Azure, Google Cloud, CI/CD Pipelines, Git, Terraform, .NET Aspire, Coolify

Databases: PostgreSQL, SQL Server, MongoDB, Redis / Valkey (HybridCache)

Security: OAuth2, JWT, RBAC, Finbuckle Multi-Tenancy, KYC & Payment Gateways, HMAC Webhooks, Keycloak

AI & Realtime Systems: Microsoft.Extensions.AI, Provider-Agnostic LLM Orchestration, LiveKit WebRTC, Self-Hosted Voice AI (Silero VAD, Faster-Whisper, Kokoro/Piper), High-Throughput Integration Pipelines

Testing & Quality: xUnit, Unit Testing, Integration Testing (Testcontainers), Architecture Testing (NetArchTest), Code Reviews, TreatWarningsAsErrors

AI-Assisted Development: Claude Code, GitHub Copilot, Antigravity, OpenAI Codex; structured repo harnesses (.agents/ rules & skills), spec-driven development, automated review & test guardrails

Frontend & Mobile: React 19, TypeScript, Vite, Tailwind CSS, Flutter (Riverpod, go_router), Blazor, REST/SSE/SignalR Integration

EDUCATION & LANGUAGES

Google Data Analytics Professional Certificate — Coursera, 2021

Bachelor of Science (B.Sc.) Building — Ambrose Alli University, Ekpoma, 2017

Languages: English (Fluent) • German (A1/A2 — actively learning daily; open to relocation within Germany)